

REMARKS

Status Summary

Claims 1, 9-10, 13-14, 17-18, 21-29, 66, and 70-97 are pending in the subject application. Claims 1, 9-10, 13-14, 17-18, 21-29, 66, and 70-78 presently stand rejected. Claims 79-97 have been *sua sponte* withdrawn by the Patent Office as allegedly being directed to a non-elected invention. Applicants hereby reserve the right to file one or more divisional and/or continuation patent application(s) with claims directed to the withdrawn subject matter.

Claims 1, 9-10, 13-14, 17-18, 21-29, 66, 70-73, and 78 have been canceled herein. Claim 74 has been amended. New claims 98-173 have been added. Support for the amendments and for the new claims can be found in the application as filed. No new matter has been added. Therefore, upon entry of this Amendment, claims 74-77 and 98-173 will be pending in the subject application.

Claim Rejection - 35 U.S.C. § 112, Second Paragraph

Claim 10 has been rejected by the Patent Office under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. More particularly, the Patent Office asserts that the phrase “the pre-formed nanotubes” lacks antecedent basis. See Official Action at paragraph 3.

Applicants respectfully submit that claim 10 has been canceled herein, therefore, the rejection of claim 10 is moot. Applicants note, however, that the subject matter of claim 10 has been incorporated into new claims 100, 115, 130, 147, and 159. In new claims 100, 115, 130, 147, and 159, the term “pre-formed nanotubes” has been replaced with the term “carbon nanotubes.” Applicants respectfully submit that proper antecedent basis for the term “carbon nanotubes” can be found in claims 99, 114, 129, 146, and 158 from which claims 100, 115, 130, 147, and 159 depend, respectively. Proper antecedent bases for the term “carbon nanotubes” further can be found in independent claims 98, 113, 128,

142, and 157, from which claims 100, 115, 130, 147, and 159 ultimately depend, respectively. Thus, applicants respectfully submit that claims 100, 115, 130, 147, and 159 comply with 35 U.S.C. § 112, second paragraph. Accordingly, applicants respectfully request that the rejection of claim 10 under 35 U.S.C. § 112, second paragraph, be withdrawn with respect to new claims 100, 115, 130, 147, and 159 which were based on original claim 10, and that new claims 100, 115, 130, 147, and 159 be allowed at this time.

Claim Rejections - 35 U.S.C. § 103 over Russ et al.

Claims 1, 14, 17-18, 21-25, 27-29, 66, 70-71, 73-75, and 77-78 have been rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No. 6,342,755 to Russ et al. (hereinafter "Russ") for the reasons of record. See Official Action at paragraph 5.

Applicants note that in the Official Action ("Action") dated February 17, 2005, Russ is noted as being directed to a process for manufacturing a field emission cathode by electrophoretic deposition. See Action dated February 17, 2005 at paragraph 5. The Action further asserted that Russ discloses that the deposition comprises providing a particle loaded deposition bath comprising a plurality of particles of an electron emitting material, a plurality of particles of an insulating material, a hydrophilic alcohol, water and a charger (see abstract), wherein the emitting particles include elemental metals, silicon and forms of carbon and are of particle size between 0.05 to 20 micrometers (col. 2, lines 15-23); wherein the insulating particle include oxides and carbides and are of particle size of a quarter or a half of that of the emitting particles (col. 2, lines 24-30); and wherein the charger includes $Mg(NO_3)_2$ (col. 2, lines 47-49). Id.

The Action contends that the difference between Russ and the instant claims is the use of carbon nanotubes or nanowires as the nanostructure-containing material. Id. The Action further contends that since the particles disclosed in Russ are particles of nanostructure-containing materials and include forms of carbon and oxide, the subject matter as a whole allegedly would have been obvious to one of ordinary skill in the art at the time the invention was made

to have modified the teachings of Russ because the selection of any of known equivalent forms of carbon, silicon or oxide as particles in Russ allegedly would have been within the level of ordinary skill in the art. Id.

In the outstanding Official Action dated October 4, 2005 with regard to the added feature of an adhesion promoting material in the suspension for the co-deposition with the carbon nanotubes, Russ is noted as disclosing that its suspension contains particles of metals, such as tin, and forms of carbon, as the Action stated that it has been held that "it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose." See Official Action dated October 4, 2005 at paragraph 5 (quoting In re Kerkhoven, 205 U.S.P.Q. 1069; In re Susi, 169 U.S.P.Q. 423; and In re Crockett, 126 U.S.P.Q. 186).

After careful consideration of the rejections and the contentions asserted, applicants respectfully traverse these contentions as discussed below.

Preliminarily, and without acquiescing to the rejection or the reasons therefor, applicants note that claims 1, 14, 17-18, 21-25, 27-29, 66, 70-71, 73, and 78 have been canceled herein, thereby rendering the rejection moot with regard to these claims. Applicants note, however, that the subject matter of claims 1, 14, 17-18, 21-25, 27, and 66 has been incorporated into new claims 98, 102-109, 111-113, 117-124, 126-128, 132-142, 149-154, 156-157, 161-168, and 170-173, as described more fully immediately hereinbelow.

The subject matter of claim 1 has been incorporated into new claims 98, 113, 128, 142, 157, 172, and 173. New claim 98 is directed to a method of depositing a composite layer as described in claim 1 as amended, wherein the adhesion promoting material is a carbon-dissolving material selected from the group consisting of nickel, iron, cobalt and manganese. Applicants respectfully submit that Russ does not teach or suggest the use of adhesion promoting materials including nickel, iron, cobalt and manganese as recited in new claim 98. New claims 102-109 and 111-112 are based on claims 14, 17-18, 21-25, 27, and 66, respectively. New claims 102-109 and 111-112 depend from new claim

98 and, thus, include all of the limitations of claim 98. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of new claims 102-109 and 111-112.

New claim 113 is directed to a method of depositing a composite layer as described in claim 1 as amended, wherein the adhesion promoting material is a carbide-forming material selected from the group consisting of tantalum, niobium, vanadium, and hafnium. Applicants respectfully submit that Russ does not teach or suggest the use of adhesion promoting materials including tantalum, niobium, vanadium, and hafnium as recited in new claim 113. New claims 117-124 and 126-127 are based on claims 14, 17-18, 21-25, 27, and 66, respectively. New claims 117-124 and 126-127 all depend from new claim 113 and, thus, include all of the limitations of claim 113. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of new claims 117-124 and 126-127.

New claim 128 is directed to a method of depositing a composite layer as described in claim 1 as amended, wherein the adhesion promoting material is a binder selected from the group consisting of poly(vinyl butyral-co-vinyl alcohol-co-vinyl acetate) and poly(vinylidene fluoride). Applicants respectfully submit that Russ does not teach or suggest the use of adhesion promoting materials including poly(vinyl butyral-co-vinyl alcohol-co-vinyl acetate) and poly(vinylidene fluoride) as recited in new claim 128. New claims 132-141 are based on claims 14, 17, 18, 21-25, 27, and 66, respectively. New claims 132-141 depend from new claim 128 and, thus, include all of the limitations of claim 128. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of new claims 132-141.

New claim 142 is directed to a method of depositing a layer of carbon nanotubes as described in claim 1 as amended, but without the recitation of an adhesion-promoting material in the suspension of step (i). New claim 142 further incorporates the subject matter of claims 22 and 23 as part of a post-electrophoretic deposition, two-step annealing process. Applicants respectfully submit that Russ does not teach or suggest a post-electrophoretic deposition,

two-step annealing process as recited in new claim 142. New claims 149-154 and 156 are based on claims 14, 17-18, 21, 24-25, and 66, respectively. New claims 149-154 and 156 depend from new claim 142 and, thus, include all of the limitations of claim 142. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of new claims 149-154 and 156.

New claim 157 is directed to a method of depositing a layer of carbon nanotubes as described in claim 1 as amended, without the recitation of an adhesion promoting material in the suspension of step (i), and wherein the substrate is pre-coated with an adhesion promoting metal selected from the group consisting of titanium, iron, lead, cobalt, nickel, tantalum, tungsten, niobium, zirconium, vanadium, hafnium, cadmium, zinc, and bismuth. Applicants respectfully submit that Russ does not teach or suggest the use of a substrate that is pre-coated with an adhesion promoting metal including titanium, iron, lead, cobalt, nickel, tantalum, tungsten, niobium, zirconium, vanadium, hafnium, cadmium, zinc, and bismuth as recited in new claim 157. New claims 161-168 and 170-171 are based on claims 14, 17-18, 21-25, 27, and 66, respectively. New claims 161-168 and 170-171 all depend from new claim 157 and, thus, include all of the limitations of claim 157. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of new claims 161-168 and 170-171.

New claim 172 is directed to a method of depositing a composite layer of carbon nanotubes as described in claim 1 as amended, wherein the liquid medium of step (i) is dimethyl formamide (DMF). Applicants respectfully submit that Russ does not teach or suggest the use of DMF as a liquid medium for containing a suspension of carbon nanotubes for electrophoretic deposition as recited in new claim 172.

Finally, new claim 173 is directed to a method of depositing a composite layer of carbon nanotubes as described in claim 1 as amended, wherein the adhesion promoting material is a low melting point material selected from the group consisting of cadmium, zinc and bismuth. Applicants respectfully submit

that Russ does not teach or suggest the use of adhesion promoting materials including cadmium, zinc and bismuth as recited in new claim 173.

Accordingly, applicants respectfully submit that new claims 98, 102-109, 111-113, 117-124, 126-128, 132-142, 149-154, 156-157, 161-168, and 170-173, based upon the subject matter of rejected claims 1, 14, 17-18, 21-25, 27, and 66 are patentable over Russ. Applicants, thus, believe that the instant rejection under 35 U.S.C. 103(a) over Russ with regard to new claims 98, 102-109, 111-113, 117-124, 126-128, 132-142, 149-154, 156-157, 161-168, and 170-173 would be improper. Applicants further respectfully submit that new claims 98, 102-109, 111-113, 117-124, 126-128, 132-142, 149-154, 156-157, 161-168, and 170-173 are in condition for allowance and request a Notice of Allowance to that effect.

Additionally, applicants respectfully submit that claim 74 has been amended to include some of the subject matter of canceled claim 78. Applicants respectfully submit that as support for the amendment can be found in claim 78, the amendment does not constitute new matter. Claim 74 as amended is directed to a method of depositing a composite film with at least one component being a nanostructured material, the method including the use of small particles to promote adhesion, wherein the small particles comprise a metal including iron, lead, and cobalt. Applicants respectfully submit that Russ does not teach or suggest a method of depositing a composite film using iron, lead, or cobalt particles to promote the adhesion of a nanostructured material as recited in claim 74 as amended. Claims 75 and 77 depend from claim 74 and, thus, include all of the limitations of claim 74. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of claims 75 and 77.

Accordingly, applicants respectfully submit that claims 74, 75 and 77 have been distinguished from Russ. Applicants respectfully request that the rejection of claims 74, 75, and 77 under 35 U.S.C. 103(a) over Russ be withdrawn, and further request that claims 74, 75, and 77 be allowed at this time.

Claim Rejections - 35 U.S.C. § 103 over Russ and Choi *et al.* and
Gal-Or *et al.*

Claim 13 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Russ as applied to claims 1, 14, 17-18, 21-25, 27-29, 66, 70-71, 73-75, and 77-78 and further in view of U.S. Patent No. 6,616,497 to Choi *et al.* (hereinafter "Choi") or U.S. Patent No. 6,258,237 to Gal-Or *et al.* (hereinafter "Gal-Or") for reasons of record.

Applicants note that in the Action dated February 17, 2005, Russ, col. 5, lines 62-64, is noted as disclosing that particles may be ball milled with glass beads to break up any agglomerates prior to being added to the deposition bath. The Action asserted that the difference between Russ and the instant claim is that Russ is silent with regard to the stirring of the deposition bath to thereby facilitate the formation of a stable suspension. The Action further asserted that Choi shows in a process for manufacturing a field emitter by electrophoretic deposition the agitating during the electrophoresis (col. 2, lines 44-49). The Action asserted that Gal-Or shows in electrophoretic deposition the agitating during the electrophoresis (col. 11, lines 6-8). Thus, the Action contended that the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made since to have modified the teachings of Russ as suggested by either Choi or Gal-Or would result in uniformly suspending the particles during the electrophoresis.

Initially, applicants respectfully submit that claim 13 has been canceled herein, thereby rendering the rejection of claim 13 moot. However, applicants also note that the subject matter of claim 13 has been incorporated into new claims 101, 116, 131, 148, and 160. New claims 101, 116, 131, 148, and 160 depend from new claims 98, 113, 128, 142, and 157, respectively. Thus, new claims 101, 116, 131, 148, and 160 each include all of the elements of one of claims 98, 113, 128, 142, or 157. As described hereinabove, Russ does not teach or suggest all of the elements of new claims 98, 113, 128, 142, and 157. In particular, Russ does not teach or suggest the carbon-dissolving materials of claim 98, the carbide-forming elements of claim 113, the binders of claim 128,

the post-electrophoretic deposition, two-step annealing process of claim 142, or a substrate pre-coated with the adhesion-promoting metals of claim 157.

Applicants respectfully submit that it appears that Choi and Gal-Or are being relied on for their description of agitating a suspension for electrophoretic deposition. Choi and Gal-Or do not cure the deficiencies of Russ with respect to claims 98, 113, 128, 142, and 157.

Accordingly, applicants respectfully submit that Russ, Choi, and Gal-Or, either alone or in combination, do not teach or suggest each and every element of claims 101, 116, 131, 148, and 160. Applicants respectfully request that the present rejection of claim 13 be withdrawn with respect to new claims 101, 116, 131, 148, and 160, and that new claims 101, 116, 131, 148, and 160 be allowed at this time.

Claim Rejections - 35 U.S.C. § 103 over Russ and De Jaeger et al.

Claims 26 and 72 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Russ as applied to claims 1, 14, 17-18, 21-25, 27-29, 66, 70-71, 73-75, and 77-78 and further in view of U.S. Patent No. 5,296,117 to De Jaeger et al. (hereinafter "De Jaeger") for reasons of record.

Applicants note that in the Action dated February 17, 2005, Russ is noted as disclosing in col. 5, lines 25-38, the use of a dispersant including carboxy methyl cellulose to increase adhesion strength. A statement is made in the Action that the difference between Russ and the instant claims is the use of a specific binder. De Jaeger shows in a process of electrophoretically depositing particle the use of binder in addition to a charger (paragraph crossing cols. 10 and 11). Accordingly, it is asserted that because the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made by modifying the teachings of Russ as suggested by De Jaeger et al. since this results in fixing the particles and the selection of any known equivalent organic resin binder would have been within the level of ordinary skill in the art.

Without acquiescing to the rejection or the Patent Office's reasons therefor, applicants respectfully submit that claims 26 and 72 have been canceled, thereby rendering the instant rejection moot. However, applicants note that the subject matter of claim 26 has been incorporated into new claims 110, 125, 128, 155, and 169. Claim 128 is an independent claim. As discussed above, Russ does not teach or suggest each and every element of claim 128. Claims 110, 125, 155, and 169 depend from claims 98, 113, 142, and 157, respectively, and, therefore, include all of the elements of claims 98, 113, 142, and 157. The deficiencies of Russ with respect to claims 98, 113, 142, and 157 also have been addressed hereinabove. Further, applicants note that the Examiner has acknowledged that Russ does not teach the specific binders of claim 26, which are now recited in new claims 110, 125, 128, 155, and 169.

With respect to De Jaeger, applicants respectfully submit that De Jaeger teaches the use of organic resin binders as part of a process for fixing phosphor particles, wherein the organic resin binders are used to treat the substrate after the deposition of the phosphor particles. The organic resin binders are not in suspension with the particles being deposited as are the binders in instant claims 110, 125, 128, 155, and 169. Further, De Jaeger does not teach or suggest the use of poly(vinyl butyral-co-vinyl alcohol-co-vinyl acetate) or poly(vinylidene fluoride) as recited in claims 110, 125, 128, 155, and 169.

Accordingly, applicants respectfully submit that Russ and De Jaeger, either alone or in combination, do not teach or suggest each and every element of claims 110, 125, 128, 155, and 169. Thus, applicants respectfully ask that the rejection of claim 26 under 35 U.S.C. 103(a) over Russ and De Jaeger be withdrawn with respect to new claims 110, 125, 128, 155, and 169, which incorporate the subject matter of claim 26. Applicants further submit that claims 110, 125, 128, 155, and 169 are in condition for allowance and respectfully request a Notice of Allowance to that effect.

Claim Rejections - 35 U.S.C. § 103 over Russ et al. and Colbert et al.

Claims 9 and 10 stand rejected and new claim 76 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Russ as applied to claims 1, 14, 17-18, 21-25, 27-29, 66, 70-71, 73-75, 77 and 78 and further in view of U.S. Patent No. 6,824,755 to Colbert et al. (hereinafter "Colbert") for reasons of record.

Applicants note that in the Official Action dated February 17, 2005, the Examiner stated that the difference between Russ and the instant claims is the use of the type of carbon nanotube. Colbert is noted as disclosing that carbon nanotubes are known to be produced by arc discharge, col. 15, line 52, through col. 16, line 23, and the step of cutting and annealing the nanotubes, col. 18, lines 14-51, is noted. Accordingly, the Examiner contended that the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made since it would be obvious to have modified the teachings of Russ as shown by Colbert because the selection of any known equivalent nanotubes for the nanostructure-containing materials disclosed in Russ would have been within the level of ordinary skill in the art.

In the outstanding Official Action, the Patent Office further states that with regard to the limitation of shortening by chemical reaction as now presented in new claim 76, since Colbert shows under section of "Cutting Single Wall Carbon Nanotubes" in col. 18, line 14, through col. 20, line 20, the cutting of carbon nanotubes by oxidative etching or any method of cutting, the selection of any known equivalent cutting methods would have been within the level of ordinary skill in the art.

After careful consideration of the rejection and the Patent Office's reasons therefor, applicants offer the following comments.

Initially, without acquiescing to the rejection, applicants respectfully submit that claims 9 and 10 have been canceled, thereby rendering the instant rejection with respect to claims 9 and 10 moot. However, applicants note that the subject matter of claim 9 has been incorporated into new claims 99, 114, 129, 146, and 158; and the subject matter of claim 10 has been incorporated into new claims

100, 115, 130, 147, and 159. New claims 99, 114, 129, 146, and 158 depend from new claims 98, 113, 128, 142, and 157, respectively; and therefore, include all of the elements of claims 98, 113, 128, 142, and 157. Claims 100, 115, 130, 147, and 159 depend, respectively, from claims 99, 114, 129, 146, and 158. Thus claims 100, 115, 130, 147, and 159 also include all of the elements of one of claims 98, 113, 128, 142, and 157. As discussed hereinabove, Russ does not teach or suggest all of the elements of claims 98, 113, 128, 142, and 157. Thus, Russ does not teach or suggest all of the elements of claims 99, 100, 114, 115, 129, 130, 146, 147, 158, and 159.

Applicants submit that the Colbert appears to be relied upon for disclosing methods of producing and chemically shortening carbon nanotubes. Colbert does not correct the deficiencies of Russ with respect to claims 98, 113, 128, 142, and 157. As claims 99, 100, 114, 115, 129, 130, 146, 147, 158, and 159 each include all of the elements of one of claims 98, 113, 128, 142, and 157, Colbert further does not correct the deficiencies of Russ with respect to claims 99, 100, 114, 115, 129, 130, 146, 147, 158, and 159.

Accordingly, applicants submit that Russ and Colbert, either alone or in combination, do not teach or suggest each and every element of claims 99, 100, 114, 115, 129, 130, 146, 147, 158, and 159, which include the subject matter of rejected claims 9 and 10. Thus, applicants respectfully submit that the rejection under 35 U.S.C. 103(a) over Russ and Colbert be withdrawn with respect to claims 99, 100, 114, 115, 129, 130, 146, 147, 158, and 159. Applicants further submit that claims 99, 100, 114, 115, 129, 130, 146, 147, 158, and 159 are in condition for allowance and respectfully request a Notice of Allowance to that effect.

With respect to claim 76, applicants respectfully submit that claim 76 depends from claim 74, which has been amended as described hereinabove to include the use of small particles to promote adhesion, wherein the small particles comprise a metal including iron, lead, and cobalt. Thus, claim 76 now includes the use of iron, lead or cobalt. Applicants respectfully submit that Russ does not teach or suggest the use of iron, lead, or cobalt as part of a method for

depositing a composite film wherein the film comprises a nanostructured material. Therefore, applicants respectfully submit that Russ does not teach or suggest all of the elements of claim 76.

As previously noted hereinabove, applicants submit that the Examiner is relying on Colbert for disclosing methods of producing and chemically shortening carbon nanotubes. Colbert does not correct the deficiencies of Russ with respect to claim 74 as amended. Stated another way, Colbert does not teach or suggest the use of iron, lead, or cobalt as part of a method for depositing a composite film wherein the film comprises a nanostructured material. As claim 76 includes all of the elements of claim 74, Colbert further does not correct the deficiencies of Russ with respect to claim 76.

Accordingly, applicants submit that Russ and Colbert, either alone or in combination, do not teach or suggest each and every element of claim 76. Thus, applicants respectfully submit that the rejection of claim 76 under 35 U.S.C. 103(a) over Russ and Colbert be withdrawn and further request that claim 76 be allowed at this time.

Claim Rejections - 35 U.S.C. § 103 over Russ et al. and Choi et al.

Also, in the outstanding Action, amended claim 9 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Russ as applied to claims 1, 14, 17-18, 21-25, 27-29, 66, 70-71, 73-75, 77 and 78, and further in view of Choi et al. The Action states that the difference between Russ and the instant claim is the provision of shortening the length of carbon nanotubes prior to their introduction into the suspension. The Action asserts that Choi et al. shows the above limitation at col. 4, lines 13-17. The Action further asserts that the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teaching of Russ as shown by Choi because this allegedly would result in preparing the carbon nanotubes prior to their introduction into the suspension.

Applicants respectfully submit that, without acquiescing to the rejection or the Patent Office's reasons therefor, claim 9 has been canceled, thus rendering

the instant rejection with respect to claim 9 moot. As described hereinabove, the subject matter of claim 9 has been incorporated into new claims 99, 114, 129, 146, and 158. New claims 99, 114, 129, 146, and 158 depend from new claims 98, 113, 128, 142, and 157, and, thus, include all of the elements of claims 98, 113, 128, 142, and 157. Claims 98, 113, 128, 142, and 157 have been distinguished from Russ as described hereinabove. Applicants respectfully submit that Choi does not correct the deficiencies of Russ with respect to claims 98, 113, 128, 142, and 157.

Accordingly, applicants respectfully submit that Russ and Choi, either alone or in combination, do not teach or suggest each and every element of claims 99, 114, 129, 146, and 158, which include the subject matter of claim 9. Thus, applicants request the withdrawal of the rejection under 35 U.S.C. 103(a) over Russ and Choi as it may apply to claims 99, 114, 129, 146, and 158. Applicants further respectfully request the allowance of claims 99, 114, 129, 146, and 158.

New Claims

New claims 98-173 have been added by the present amendment.

Support for new claim 98 can be found in claim 1 as amended in the reply of July 17, 2005, in the specification as filed (see paragraphs 0096 and 0098 of U.S. Published Patent Application No. 2003/0102222), and in claim 4 of U.S. Patent No. 6,277,318 to Bower et al. (hereinafter "Bower"), which was incorporated by reference in the instant application (see paragraph 0008 of U.S. Published Patent Application No. 2003/0102222). Support for new claims 99 and 100 can be found in claim 9 as amended in the reply of July 17, 2005, and in original claim 10, respectively. Support for new claims 101 and 102 can be found in original claims 13 and 14. Support for new claim 103 can be found in claim 17 as amended in the reply of July 17, 2005. Support for new claims 104-106 can be found in original claims 18, 21, and 22. Support for new claims 107-112 can be found in claims 23-27 and 66 as amended in the reply of July 17, 2005.

Support for new claim 113 can be found in claim 1 as amended in the reply of July 17, 2005. Further support can be found in the specification as filed (see paragraph 0096 of U.S. Published Patent Application No. 2003/0102222), which describes the adhesion promoting materials can include carbide-forming metal; and in claim 4 of Bower, incorporated by reference in the instant application (see paragraph 0008 of U.S. Published Patent Application No. 2003/0102222), which recites that carbide-forming elements include tantalum, niobium, vanadium, and hafnium. Support for new claims 114 and 115 can be found in claim 9 as amended in the reply of July 17, 2005 and in original claim 10. Support for new claims 116 and 117 can be found in original claims 13 and 14. Support for new claim 118 can be found in claim 17 as amended in the reply of July 17, 2005. Support for new claims 119-121 can be found in original claims 18, 21, and 22. Support for new claims 122-127 can be found in claims 23-27 and 66 as amended in the reply of July 17, 2005.

Support for new claim 128 can be found in claim 1 as amended in the reply dated July 17, 2005. Further support for claim 128 can be found in the specification as filed. See paragraphs 0096 and 0097 and claim 26 of U.S. Published Patent Application No. 2003/0102222. Support for new claims 129 and 130 can be found in claim 9 as amended in the reply of July 17, 2005 and in original claim 10. Support for new claims 131 and 132 can be found in original claims 13 and 14. Support for new claim 133 can be found in claim 17 as amended in the reply of July 17, 2005. Support for new claims 134-136 can be found in original claims 18, 21, and 22. Support for new claims 137-141 can be found in claims 23-25, 27, and 66 as amended in the reply of July 17, 2005.

Support for new claim 142 can be found in original claim 1 as amended in the reply of July 17, 2005. Further support can be found in the specification as filed. See paragraphs 0096 and 0089 and claims 22 and 23 of U.S. Published Patent Application No. 2003/0102222. Support for new claims 143-145 can be found in the specification as filed. See paragraph 0089 of U.S. Published Patent Application No. 2003/0102222. Support for new claims 146 and 147 can be found in claim 9 as amended in the reply of July 17, 2005 and in original claim

10. Support for new claims 148 and 149 can be found in original claims 13 and 14. Support for new claim 150 can be found in claim 17 as amended in the reply of July 17, 2005. Support for new claims 151 and 152 can be found in original claims 18 and 21. Support for new claims 153-156 can be found in claims 24-26 and 66 as amended in the reply of July 17, 2005.

Support for new claim 157 can be found in claim 1 as amended in the reply of July 17, 2005. Further support can be found in the specification as filed. See paragraphs 0096 and 0100 and claims 28 and 29 of U.S. Published Patent Application No. 2003/0102222. Support can also be found in U.S. Patent No. 6,965,199 to Stoner et al. (hereinafter "Stoner"), which issued from U.S. Patent Application Serial No. 09/817,164, which was incorporated by reference in the instant application (see paragraph 0011 of U.S. Published Patent Application No. 2003/0102222). Stoner discloses deposition of a carbon nanotube layer on an electrode having a thin layer of an adhesion promoting material, wherein the adhesion promoting material is a low melting point material including cadmium, zinc, and bismuth. See Stoner, column 4, lines 45-50 and 54-55. Support for new claims 158 and 159 can be found in claim 9 as amended in the reply of July 17, 2005 and in original claim 10. Support for new claims 160 and 161 can be found in original claims 13 and 14. Support for new claim 162 can be found in claim 17 as amended in the reply of July 17, 2005. Support for new claims 163-165 can be found in original claims 18, 21, and 22. Support for new claims 166-171 can be found in claims 23-27 and 66 as amended in the reply of July 17, 2005.

Support for new claim 172 can be found in claim 1 as amended in the reply of July 17, 2005 and in the specification as filed. See paragraph 0078 of U.S. Published Patent Application No. 2003/0102222.

Support for new claim 173 can be found in claim 1 as amended in the reply of July 17, 2005 and in the specification as filed (see paragraph 0096 of U.S. Published Patent Application No. 2003/0102222), which describes the use of adhesion promoting materials to improve the adhesion of nanotubes to a substrate as part of a process involving the co-deposition of the nanostructures

and the adhesion promoting materials. Further support can be found in claim 1 of Stoner, incorporated by reference in the instant application (see paragraph 0011 of U.S. Published Patent Application No. 2003/0102222), which recites “an adhesion promoting material to promote adhesion of the carbon nanotubes to the substrate” wherein the adhesion promoting material can be selected from a group including cadmium, zinc and bismuth.

Accordingly applicants believe that no new material has been added.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

FEE DUE

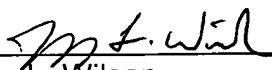
A check in the amount of \$2,055.00 is enclosed for the fee due. The Commissioner is authorized to charge any deficiencies of payment associated with the filing of this correspondence to Deposit Account No. **50-0426** to avoid the unintentional abandonment of the instant application.

Respectfully submitted,

JENKINS, WILSON, TAYLOR, & HUNT, P.A.

Date: April 4, 2006

By:



Jeffrey L. Wilson
Registration No. 36,058
Customer No.: 25297

421/170/8